coherence checks. Assessment of the validity of probability forecasts. Assessing probabilities for very rare events (Event trees. Fault trees. Using a log-odds scale). *Chapter* 11: *Decisions Involving Groups of Individuals.* Introduction. Mathematical aggregation. Aggregating judgments in General (Taking a simple average of the individual judgments. Taking a weighted average of the individual judgments). Aggregating probability judgments. Aggregating preference judgments (Aggregating preference orderings. Aggregating values and utilities). Unstructured group processes. Structured group processes. Decision conferencing. Summary. Discussion questions. References. *Chapter* 12: *Resource Allocation and Negotiation Problems.* Introduction. Modeling resource allocation problems (An illustrative problem. Determining the variables, resources and benefits. Identifying the possible strategies for each region. Assessing the costs and benefits of each strategy. Measuring each benefit on a common scale. Comparing the relative importance of the benefits. Identifying the costs and benefits of the packages. Sensitivity analysis). Summary of the main stages of the analysis. Negotiation models. An illustrative problem. Practical applications. Discussion questions. References. *Chapter* 13: *Alternative Decision-Support Systems.* Introduction. Expert systems (What is an expert system?. What is expert knowledge?. How is expert knowledge represented in expert systems?. An example of an expert system application in life underwriting). Statistical models of judgment (Recent research). Comparisons.

Robert Azencott, ed., Simulated Annealing-Parallelization Techniques (Wiley, New York, 1992) 242 pages

Chapter 1: *Sequential Simulated Annealing: Speed of Convergence and Acceleration Techniques* (Robert Azencott). *Chapter* 2: *A Common Large Deviations Mathematical Framework for Sequential Annealing and Parallel Annealing* (Robert Azencott). *Chapter* 3: *Rates of Convergence for Sequential Annealing: A Large Deviation Approach* (Olivier Catoni). *Chapter* 4: *Parallel Simulated Annealing: An Overview of Basic Techniques* (Robert Azencott). *Chapter* 5: *Parallel Annealing by Periodically Interacting Multiple Searches: An Experimental Study* (Christine Graffigne). *Chapter* 6: *Parallel Annealing by Periodically Interacting Multiple Searches: Acceleration Rates* (Robert Azencott and Christine Graffigne). *Chapter* 7: *Parallel Annealing by Multiple Trials: An Experimental Study on a Transputer Network* (P. Roussel-Ragot and Gérard Dreyfus). *Chapter* 8: *Parallel Annealing by Multiple Trials: Experimental Study of a Chip Placement Problem Using a Sequent Machine* (Bernard Virot). *Chapter* 9: *Parallel Annealing by Multiple Trials: A Mathematical Study* (Olivier Catoni and Alain Trouvé). *Chapter* 10: *Massive Parallelization of Simulated Annealing: A Mathematical Study* (Alain Trouvé). *Chapter* 11: *Massive Parallelization of Simulated Annealing: An Experimental and Theoretical Approach for Spin-Glass Models* (Isabelle Gaudron and Alain Trouvé). *Chapter* 12: *Parallel Annealing by Partitioning of Configurations: An Application to Optimal 3-D Triangulation* (Christophe Lacote, Jean Mailfert and Jean-Pierre Uhry). *Chapter* 13: *Parallel Annealing: A Comparative Study of Implementation on Hardware Architectures* (Patrick Garda). *Index.*

Fred Glover, Darwin Klingman and Nancy V. Phillips, Network Models in Optimization and their Applications in Practice (Wiley, New York, 1992) 284 pages

Chapter 1: *Netform Origins and Uses: Why Modeling and Netforms Are Important.* Background. Netform Modeling in the context of management science. A preview of netform applications. *Chapter* 2: *Fundamental Models for Pure Networks.* Fundamental principles. Formulating a network model from a word problem. Intuitive problem solving. Structural variations. More general networks. Algebraic statement of pure network model. Alternative conventions for network diagrams. *Chapter* 3: *Additional Pure Network Formulation Techniques.* A core example. Goal programming model conditions. The goal programming classification of target conditions and pre-emptive goal programming. Target flows on arcs with two endpoints. Modeling decreasing returns to scale. An extension of goal programming conditions. Graphical

interpretation of decreasing returns to scale. Combined flow restrictions. *Chapter* 4: *Dynamic Network Models.* The inventory connection. A progressive illustration. Additional inventory components. Handling backorders. Integrating production and inventory. Modeling time lags. Parallel and multi-product production-inventory systems. Joint purchase limits. Other time-phased models. Dynamic models as layered time slices. *Chapter* 5: *Generalized Networks.* Generalized networks: A practical step beyond pure networks. Generalized networks in production and inventory applications. Cash flow models. Construction differentiating potential and actual. The complication of discreteness. Designing generalized networks from alternative perspectives. Choices to use more or fewer nodes and arcs. Negative multipliers. Algebraic statement of generalized network model. The generalized network domain: A historical note. *Chapter* 6: *Netforms with Discrete Requirements.* Significance of discreteness: Departures from classical networks. The effect of the integer requirement in rounding. Integer model types. Zero-one discrete networks. A scheduling problem. Other constructions using negative multipliers. Fractional flow possibilities. Canonical constructions and hub diagrams. Zero-one integer programming problems as netforms. Connections to more general discrete problems. Fixed-charge model. *Appendix* A: *Linear Programming. Appendix* B: *Decision Support Systems for Network Models. Appendix* C: *Selected Readings. Index.*

K.R. Apt, J.W. de Bakker and J.J.M.M. Rutten, eds., Logic Programming Languages Constraints, Functions, and Objects (MIT Press, Cambridge, MA, 1993) 204 pages

Preface. Introduction. Chapter 1: *Implementation of Narrowing: The Prolog-Based Approach* (Pui Hung Cheong and Laurent Fribourg). *Chapter* 2: *Logic Programs with External Procedures* (Jan Małuszyński, Staffan Bonnier, Johan Boye, Feliks Kluźniak, Andreas Kågedal and Ulf Nilsson). *Chapter* 3: *The Semantics of Equational Logic Programming as an Instance of CLP* (María Alpuente, Moreno Falaschi, Maurizio Gabbrielli and Giorgio Levi). *Chapter* 4: *A Paradigm for Asynchronous Communication and its Application to Concurrent Constraint Programming* (Frank S. de Boer, Joost N. Kok, Catuscia Palamidessi and Jan J.M.M. Rutten). *Chapter* 5: *A Language for Contextual Logic Programming* (Luís Monteiro and António Porto). *Chapter* 6: *An Introduction to L&O* (Francis G. McCabe).

Ravindra K. Ahuja, Thomas L. Magnanti and James B. Orlin, Network Flows: Theory, Algorithms and Applications (Prentice Hall, Englewood Cliffs, NJ, 1993) 846 pages

Chapter 1: *Introduction. Chapter* 2: *Paths, Trees and Cycles. Chapter* 3: *Algorithm Design and Analysis. Chapter* 4: *Shortest Paths: Labels Setting Algorithms. Chapter* 5: *Shortest Paths: Labels Correcting Algorithms. Chapter* 6: *Maximum Flows: Basic Ideas. Chapter* 7: *Maximum Flows: Polynomial Algorithms. Chapter* 8: *Maximum Flows: Additional Topics. Chapter* 9: *Minimum Cost Flows: Basic Algorithms. Chapter* 10: *Minimum Cost Flows: Polynomial Algorithms. Chapter* 11: *Minimum Cost Flows: Network Simplex Algorithms. Chapter* 12: *Assignments and Matching. Chapter* 13: *Minimum Spanning Trees. Chapter* 14: *Convex Cost Flows. Chapter* 15: *Generalized Flows. Chapter* 16: *Lagrangian Relaxation and Network Optimization. Chapter* 17: *Multicommodity Flows. Chapter* 18: *Computational Testing of Algorithms. Chapter* 19: *Additional Applications of Network Flows.*

Petr Hajek, Tomas Havranek and Radim Jirousek, Uncertain Information Processing in Expert Systems (CRC Press, Boca Raton, 1992) 285 pages

Preliminaries: Basic Mathematical Notions. Variates and arrays. Propositional calculus. Probability. Graphs. *Chapter* 1: *Probability.* Basic notions. Independence and conditional probability: Events. Independence and conditional probability: Two random variates. Independence and conditional probabilities: